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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,722	02/11/2002	Christophe F. Pomarede	ASMEX.320 A	6768
20995	7590	12/04/2003	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			POMPEY, RON EVERETT	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/074,722

Applicant(s)

POMAREDE ET AL.

Examiner

Ron E Pompey

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murthy et al. (US 6,373,112) in further view of Nakabayashi et al. (US 6,319,782) and Shiota et al. (US 5,879,970).

Murthy discloses the limitations of claims 1-47:

depositing a silicon-containing seed layer (106, fig. 2) over the high dielectric constant material (104, fig. 2) under seed phase conditions (col. 2, lns. 29-38); and

depositing a silicon-containing bulk layer (108, fig. 2) over the seed layer under bulk phase conditions, the bulk phase conditions selected to result in a higher deposition rate than the seed phase conditions (col. 4, ln. 41 – col. , ln. 9).

3. Murthy discloses the claimed limitations, as described above, except the limitations disclosed below by Nakabayashi and Shiota:

Nakabayashi discloses:

wherein silane includes higher order silane gas;

wherein the seed phase is less than 500 Å/min and the deposition rate for of the bulk phase is greater than 500 Å/min (col. 10, ln. 44 – col. 11, ln. 31);

Shiota discloses:

using a non-hydrogen carrier gas (col. 1, Ins. 20-40); and

Therefore one of ordinary skill would have combined the limitations disclosed in Nakabayashi and Shiota with Murthy, because Murthy does not explicitly state some of the process conditions that are claimed. Also, Murthy explicitly discloses "other oxides such as for example Hafnium oxides, and the specification does not disclose a distinctive difference between the materials listed in the group of high dielectric materials. Therefore, because Murthy does disclose one in the group it would have been obvious to one of ordinary skill in the art at the time of the invention to use the other materials in the group.

Response to Arguments

4. Applicant's arguments filed 9-24-03, pertaining to claims 1-47, have been fully considered but they are not persuasive.

Applicant(s) argues that neither the O nor Shiota reference disclose using a non-hydrogen carrier. However in Nakabayashi (col. 10, Ins. 44-47; 51-55) discloses using Chlorine as a carrier gas, to strip away unwanted oxide that is formed. This is one example that is shown in the Nakabayashi or Shiota references that demonstrate one of ordinary skill in the art uses non-hydrogen gases in the formation of a silicon layer.

Also, Applicant argues that Nakabayashi does not show motivation to use disilane instead of the silane disclosed in Murthy. Murthy talks of the general conditions of how to form a seed layer and give an example of using silane as the main gas.

Art Unit: 2812

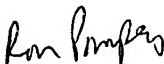
Nakabayashi, discloses using either silane or disilane (col. 10, Ins. 60-65), therefore showing that one of ordinary skill in the art uses the gases interchangeably.

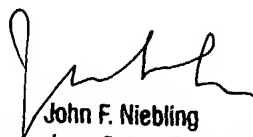
Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E Pompey whose telephone number is (571) 272-1680. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.


Ron Pompey
Art Unit: 2812
December 1, 2003


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800